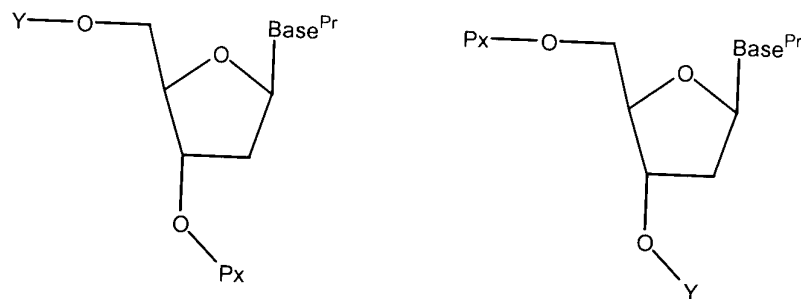


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Docket No.: 2719.2001-000
 Title: Synthesis of Oligonucleotide Array
 Inventor: Glenn H. McGall

Figure 1A



Px = phosphoramidite, H-phosphonate or phosphate

Y = one of the general structures in Figures 1B-1I (R_1 = -H, alkyl or aryl):

Figure 1B

o-nitrobenzylthioethyloxycarbonyl (NBTEOC)

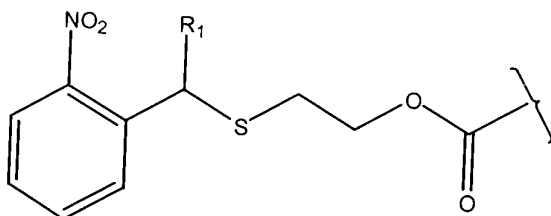
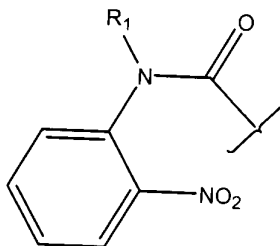


Figure 1C

o-nitrophenylaminocarbonyl (NPAC)



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Figure 1D

o-nitrophenoxy carbonyl (N2POC)

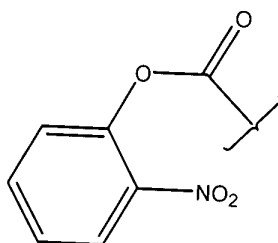


Figure 1E

m-nitrophenoxy carbonyl (N3POC)

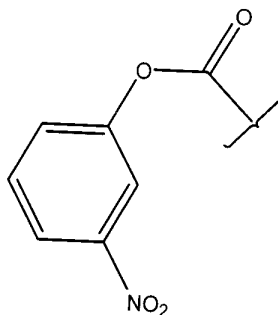
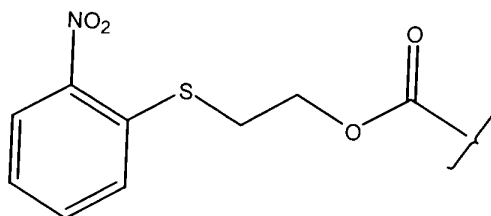


Figure 1F

o-nitrophenylthioethyloxycarbonyl



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 Inventor: Glenn H. McGall

Figure 1G

α -methyl-8-nitronaphthylmethoxycarbonyl (MeNMOC)

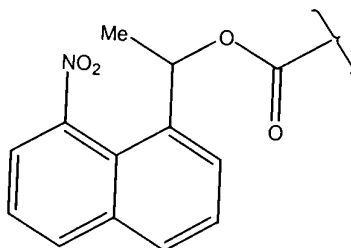
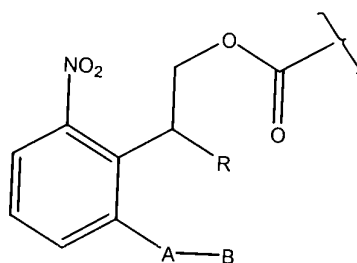


Figure 1H

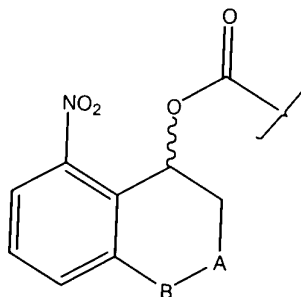
6-substituted 2-(o-nitrophenyl)-2-propyloxycarbonyl (6NPPOC)



A = O, S, N-alkyl, N-aryl, $(CH_2)_n$, where n = 0 to about 3
 B = aprotic weakly basic group (e.g., N-alkylimidazole)

Figure 1I

cyclic o-nitrobenzyloxycarbonyl

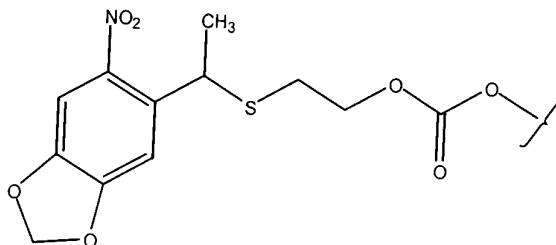


A = O, S, N-alkyl, N-aryl, $(CH_2)_n$, where n = 0 to about 3
 B = aprotic weakly basic group (e.g., N-alkylimidazole)

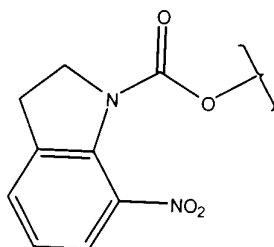
APPROVED	O. G. FIG.
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Figure 2A

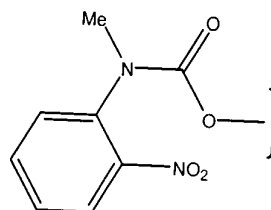
TEMPOC



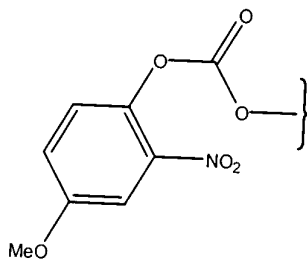
NIOC



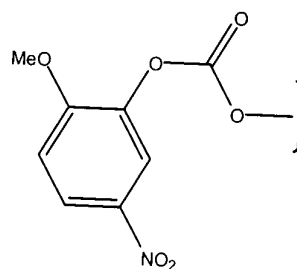
NAMOC



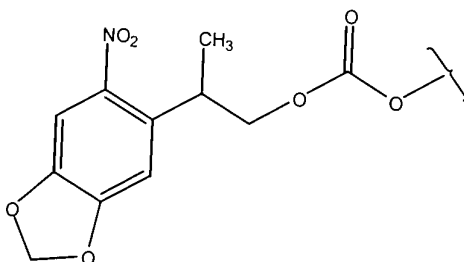
MeN2POC



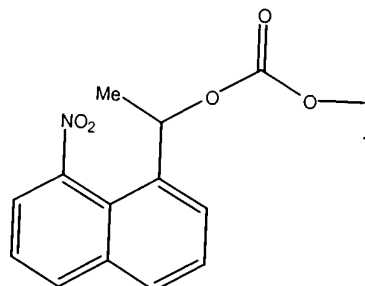
MeN3POC



NP2POC



NNEOC



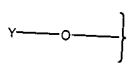
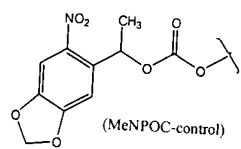
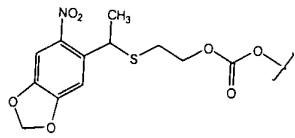
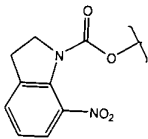
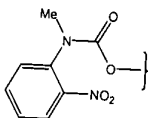
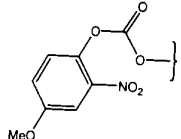
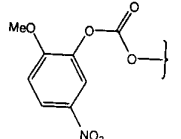
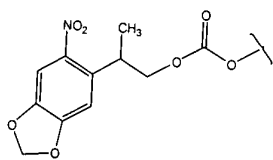
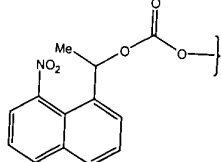
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Docket No.. 2719.2001-000

Title: Synthesis of Oligonucleotide Arrays..

Inventor: Glenn H. McGall

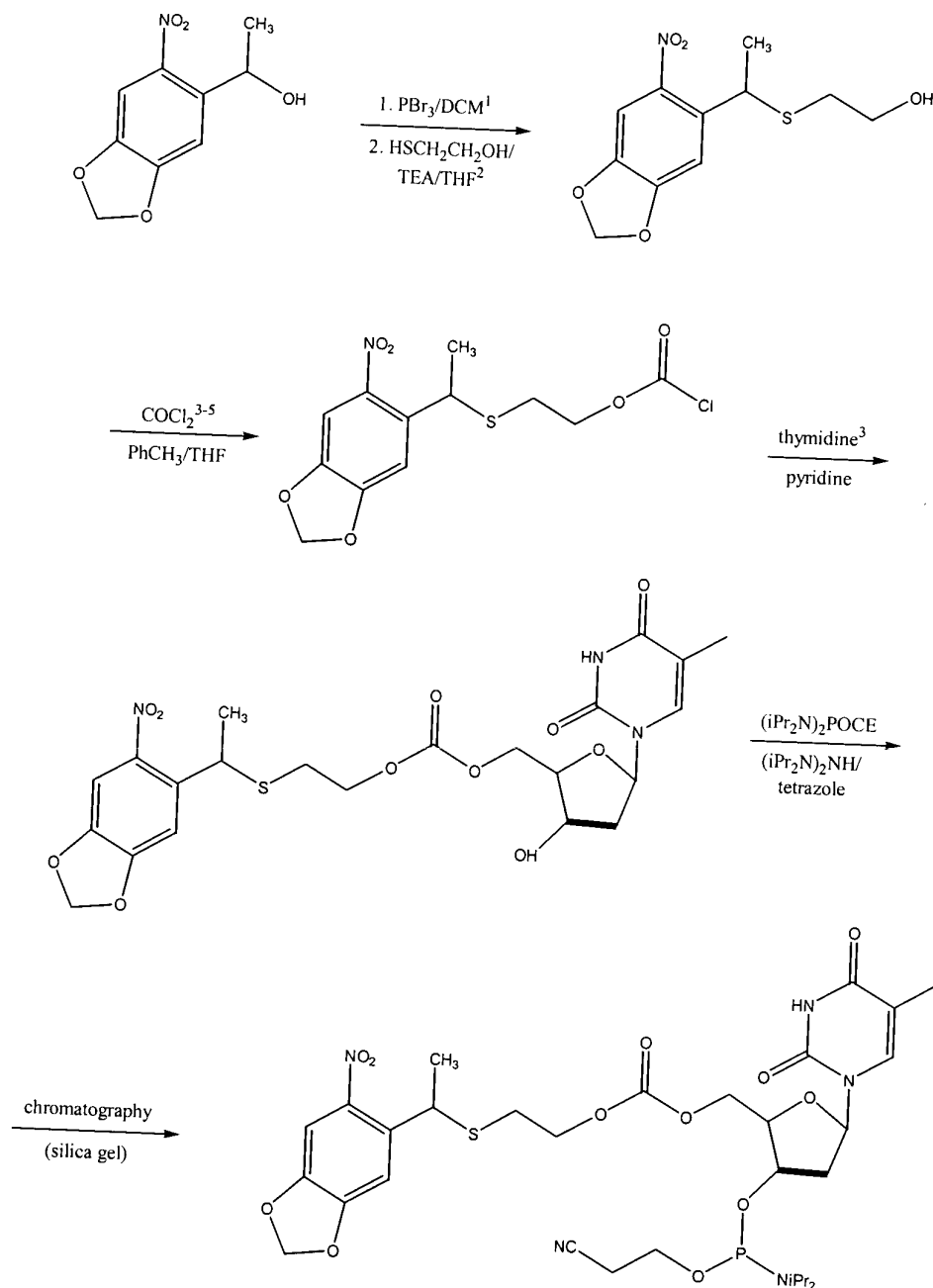
Figure 2B
Coupling Efficiency Data

	Stepwise yield	photolysis conditions
 (MeNPOC-control)	about 88 %	nonpolar solvent
	about 85 %	MeOH
	95 %	DMSO
	94 %	Nucleophilic solvent (MeOH)
	about 80 %	Nucleophilic solvent (MeOH)
	about 75 %	Nucleophilic solvent (MeOH)
	90 %	basic solvent (1 % NMI/DMSO)
	96 %	DMSO

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Figure 3

5'-TEMPOC-T-Phosphoramidite



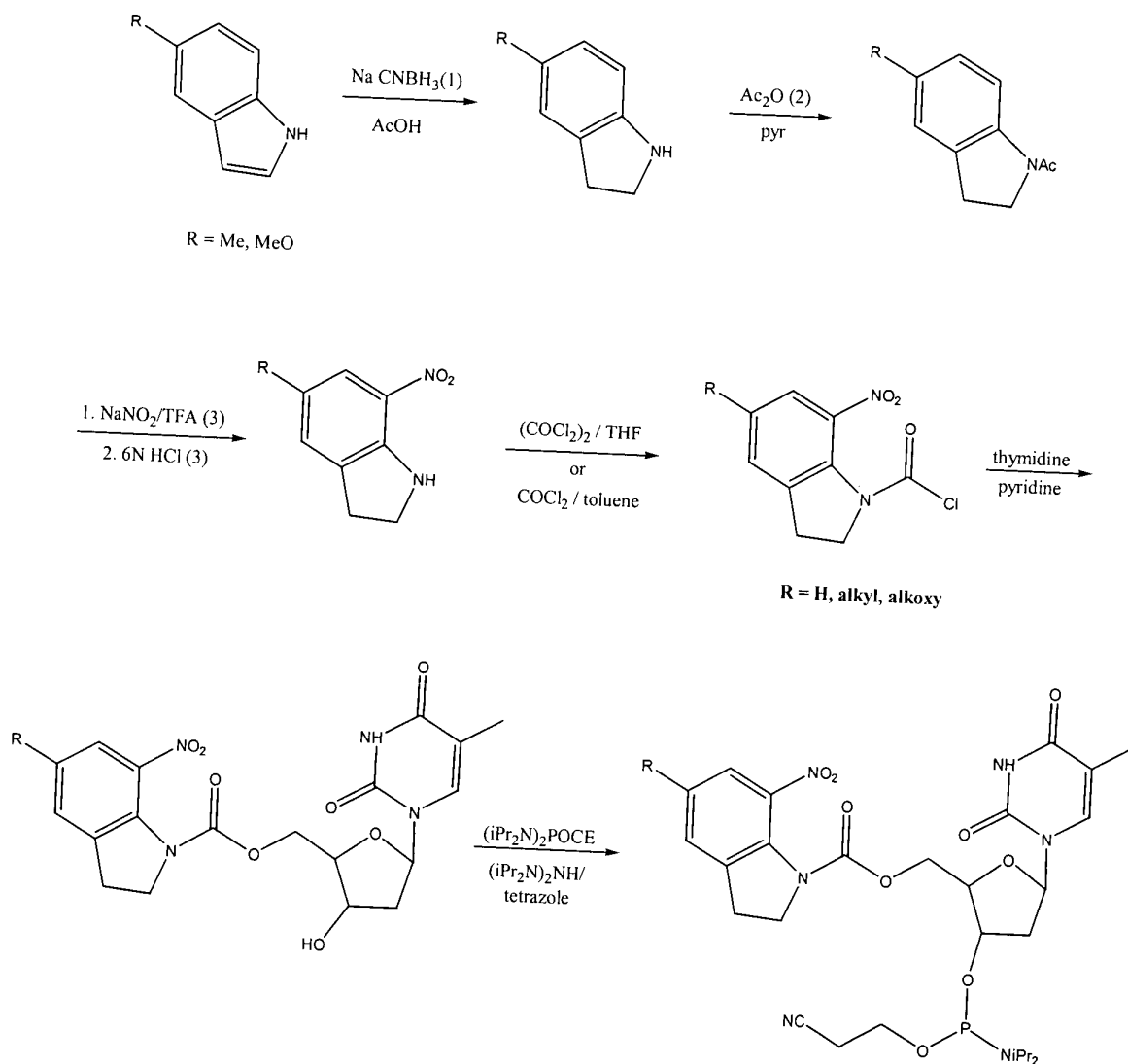
1. Dyer, et al. JOC 64: 7988 (1999)
2. Tetrahedron Lett., 38(52), 8933-4 (1997)
3. McGall, et al. JACS 119: 5081 (1997)
4. Triphosgene may work equally well for this step.
5. Chloroformate can probably be used without purification.

APPROVED	O. G. FIG.
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Docket No.: 2719.2001-000
 Title: Synthesis of Oligonucleotide Arrays
 Inventor: Glenn H. McGall

Figure 4

Synthesis of NINOC-T-CEP



1. Bromridge, et al. (1998) *J. Med. Chem.* 41: 1598.
2. (i) Brooker, L.S., et al. (1953) *US Pat.* 2,646,430; (ii) Boekelheide, et al. (1954) *J. Org. Chem.* 19: 504.; (iii) Bennet, et al (1941) *J. Chem Soc.* 74: 244.
3. Mortensen, et al. (1996) *Org. Prep. Proc. Int.* 28: 123.

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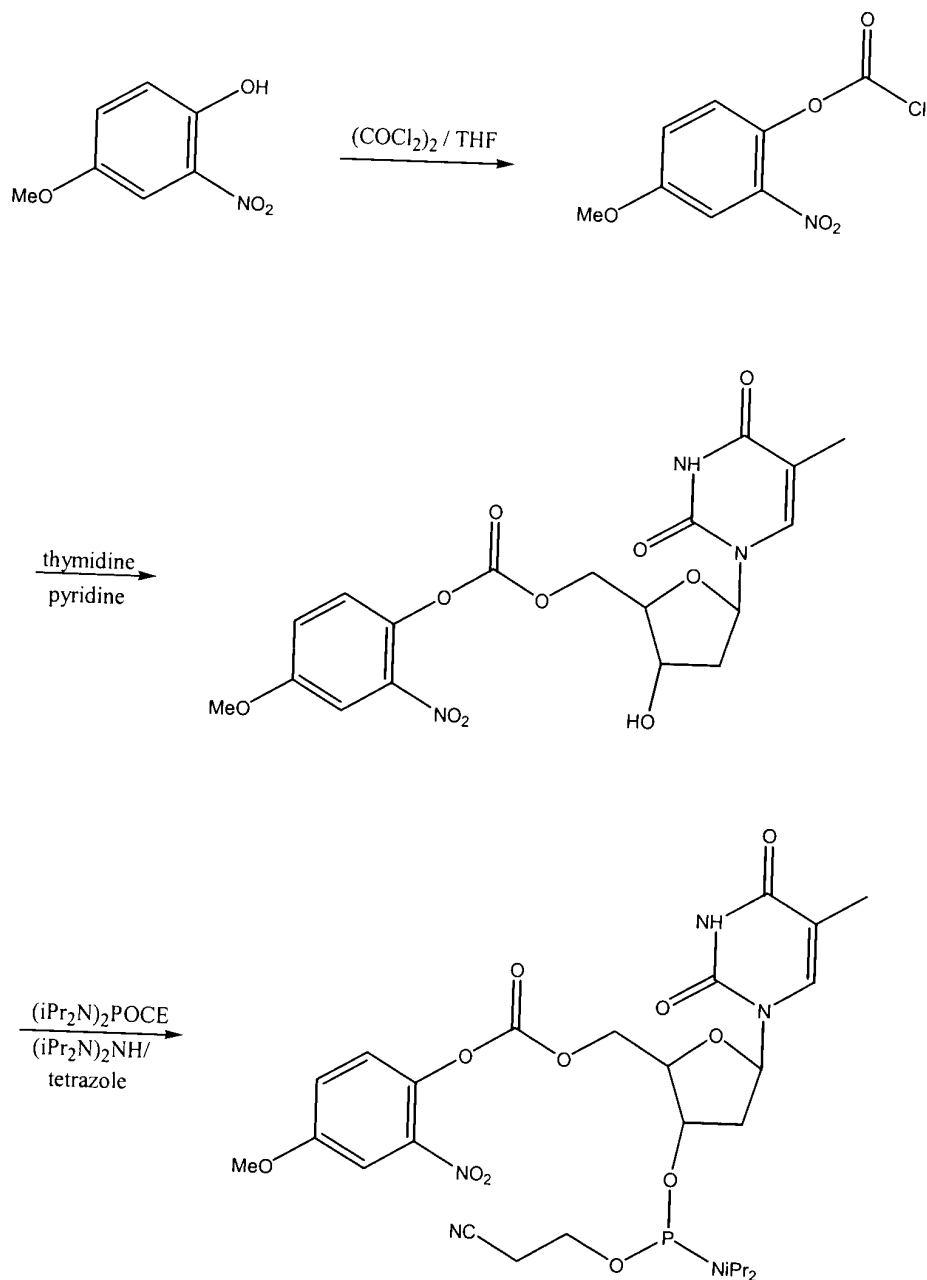
Docket No.. 2719.2001-000

Title: Synthesis of Oligonucleotide Arrays.

Inventor: Glenn H. McGall

Figure 5

Me2NPOC-T-CEP

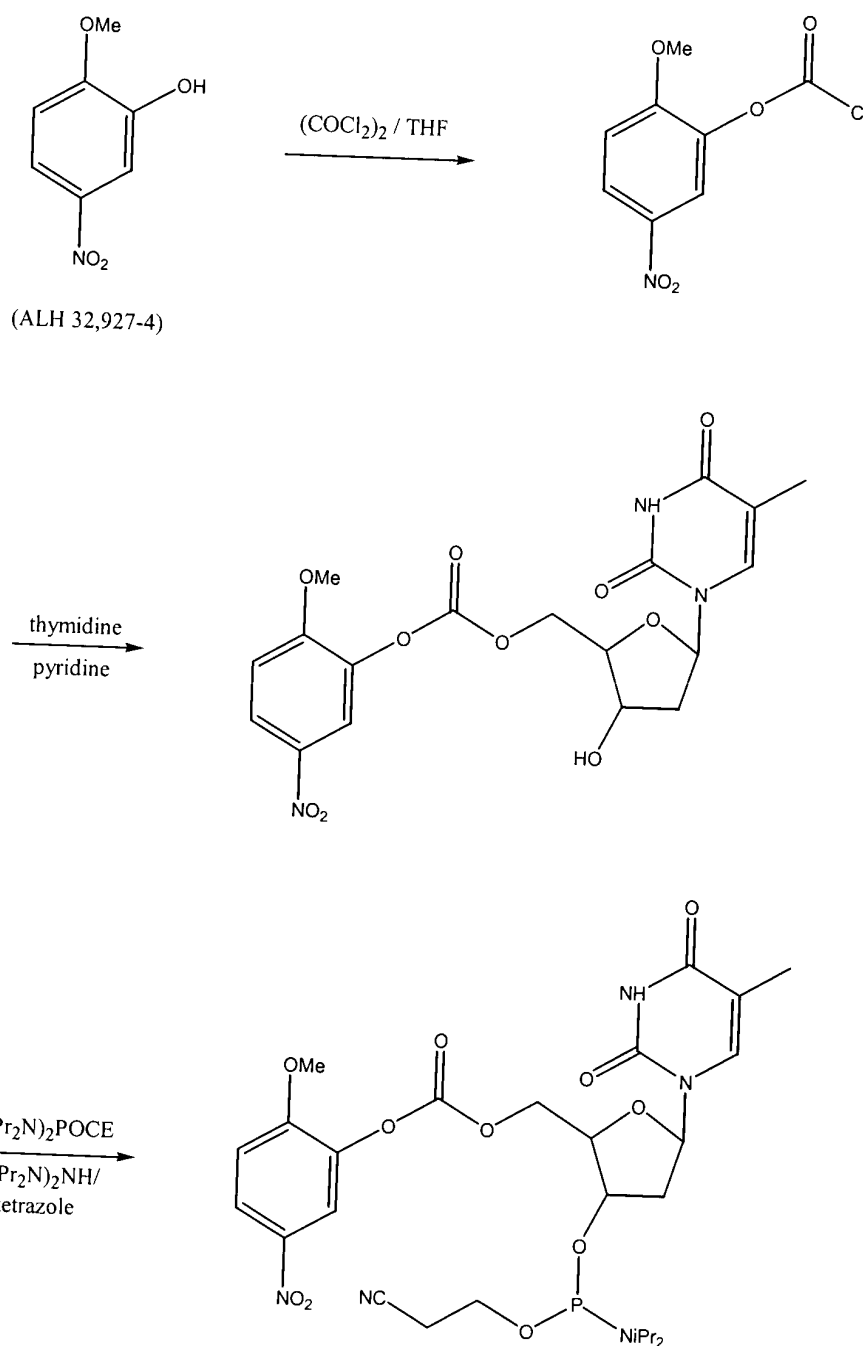


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 Title: Synthesis of Oligonucleotide Array
 Inventor: Glenn H. McGall

Figure 6

Me3NPOC-T-CEP

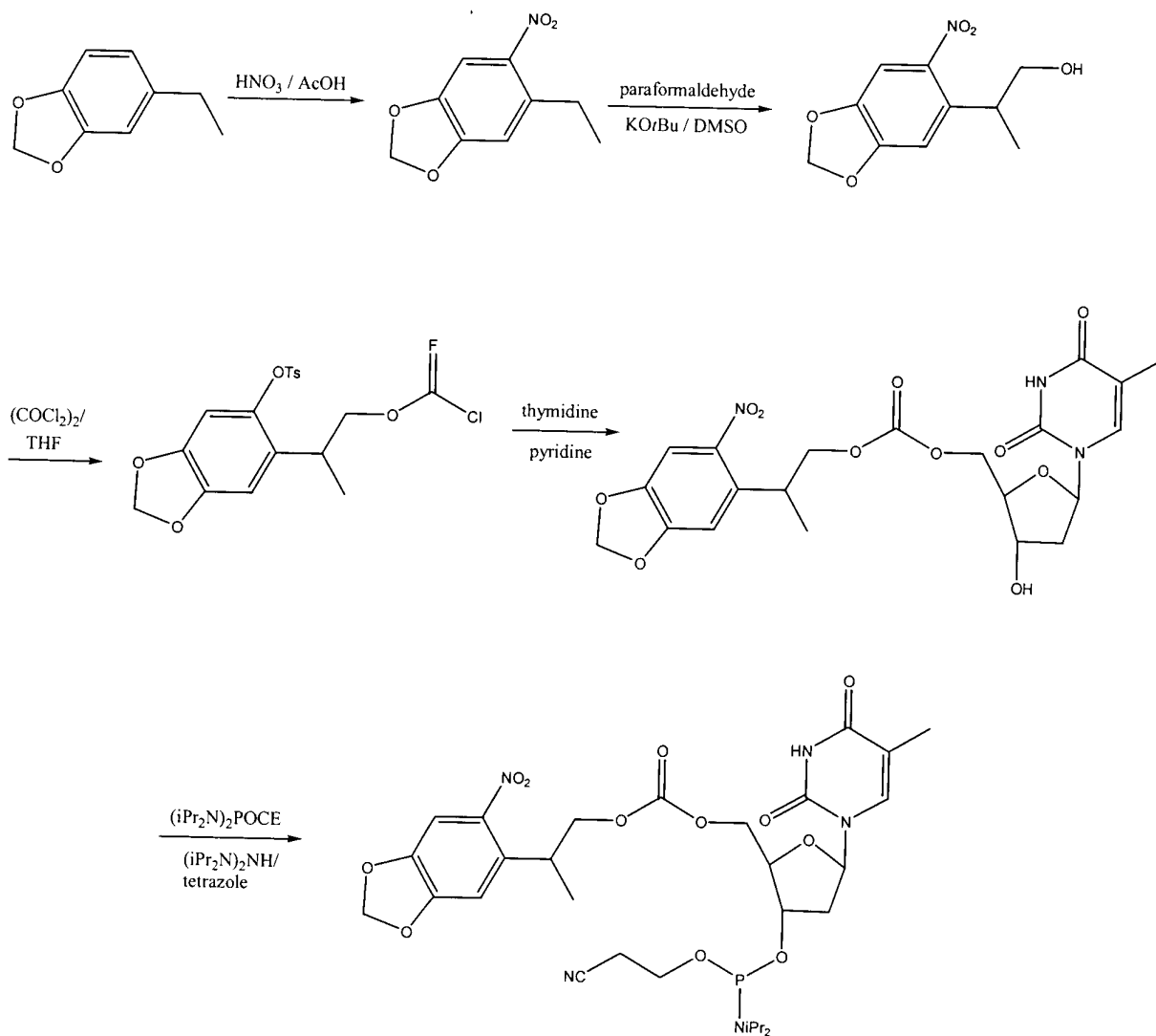


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Docket No.: 2719.2001-000
 Synthesis of Oligonucleotide Arra
 Inventor: Glenn H. McGall

Figure 7

NP2POC-T-CEP



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Docket No.: 2719.2001-000

Synthesis of Oligonucleotide Array

Inventor: Glenn H. McGall

Figure 8

NNEOC-T-CEP

